

Calculating a percentage change

Year 7 About 60 minutes Calculator allowed 48 marks



Hints online, answers free with an account:
mathswariz.uk/worksheets/ks3-year-7-calculating-a-percentage-change/

Date _____

A Do Now

Quick questions to start.

- A1** Needed today [1 mark] **A2** Needed today [1 mark]
 Write 1.4 as a percentage. Write 35 out of 140 as a percentage.

Answer

Answer

- A3** Last lesson [1 mark] **A4** From chapter 1 [1 mark]
 What is the multiplier for a decrease of 12%? Find the highest common factor of 24 and 36.

Answer

Answer

B Example, then your turn

Year 7

Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

The price of a phone goes up from £160 to £208. Work out the percentage increase.

Hint old value $\times$ multiplier = new value, so the multiplier is new $\div$ old.

- B1** A puppy's mass goes up from 4.5 kg to 6.3 kg. Work out the percentage increase. [2 marks]

Answer

EXAMPLE 2

In a sale a washing machine is reduced from £450 to £378. Work out the percentage reduction.

Hint The multiplier is less than 1 for a decrease. The decrease is 100% take away the multiplier as a percentage.

- B2** The number of members of a club falls from 125 to 95. Work out the percentage decrease. [2 marks]

Answer

EXAMPLE 3

A charity raised £850 in one year and £2125 the next year. Work out the percentage increase.

Hint The multiplier is more than 2, so the increase is more than 100%.

B3 The number of people living in a village rises from 3600 to 8820. Work out the percentage increase. [2 marks]

Answer

EXAMPLE 4

Chloe's time for a race goes down from 1 hour 20 minutes to 1 hour 8 minutes. Work out the percentage decrease.

Hint Change both times into minutes first.

B4 A journey takes 2 hours 15 minutes. After a new road opens, it takes 1 hour 48 minutes. Work out the percentage decrease in the time. [3 marks]

Answer

c Practice

Year 7

C1 A number changes from 64 to 56. Is this an increase or a decrease? By what percentage? [2 marks]

Answer

C2 A bus fare goes up by 30p, from £2.40 to £2.70. Work out the percentage increase. [2 marks]

Answer

C3 Tom's pay goes up from £2430 to £2575 a month. Work out the percentage increase, to 1 decimal place. [2 marks]

Answer

C4 A shop sold 840 games in May and 966 games in June. Work out the percentage change. [2 marks]

Answer

C5 A house price goes up from £150 000 to £180 000. A car price goes up from £8000 to £10 000. Which has the greater percentage increase? Show your working. [3 marks]

Answer

D Exam-style questions

GCSE Foundation

D1 The number of birds visiting a garden falls from 80 to 60. Leo says, "That is a 33% decrease, because 20 out of 60 is about 33%." [3 marks]

Is Leo correct? Give a reason for your answer.

D2 The table shows the number of votes for three parties in two elections.

(a) Work out the percentage change in the votes for the Red party. Say whether it is an increase or a decrease. [2 marks]

Party	2019	2023
Red	640	736
Green	250	180
Blue	1200	1260

Answer

(b) Work out the percentage change in the votes for the Green party. Say whether it is an increase or a decrease. [2 marks]

Answer

(c) Which party had the greatest percentage change in its votes? [1 mark]

Answer

Total for D2: 5 marks

D3 The price of a sofa goes up from £560 to £644.

(a) Show that the multiplier for this change is 1.15.

[1 mark]

(b) Write down the percentage increase.

[1 mark]

Answer

(c) In a sale the price of the sofa is reduced from £644 to £483. Work out the percentage reduction.

[2 marks]

Answer

Total for D3: 4 marks

D4 In a sale every price is reduced by £30.

(a) A coat was £150. Work out the percentage reduction for the coat.

[2 marks]

Answer

(b) Ella says, "Every item has the same percentage reduction, because they all have £30 off." Use an item that was £600 to show that Ella is wrong.

[2 marks]

Total for D4: 4 marks

D5 A car was worth £12 000 when it was new. After 3 years it was worth £7680.

(a) Work out the percentage decrease in its value.

[2 marks]

Answer

(b) In the next year its value fell by a further 25%. Work out the total percentage decrease from when the car was new.

[2 marks]

Answer

Total for D5: 4 marks

No route is given. The hints are at the end of the sheet. Use one at a time.

E1 The prices in a shop go up by 20% one year and by 25% the next year. Work out the total percentage increase over the two years. [4 marks]

Answer

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Choose a price to try, for example £100, and follow it through both years.
- Hint 2** After the first year £100 becomes £120. In the second year the 25% is taken of £120.
- Hint 3** $120 \times 1.25 = 150$, so £100 became £150: a 50% increase, not 45%.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

- I can work out a percentage increase from an old and a new value. ☐ ☐ ☐
- I can work out a percentage decrease from an old and a new value. ☐ ☐ ☐
- I can work out increases of more than 100%. ☐ ☐ ☐
- I can explain why a change is compared with the original value. ☐ ☐ ☐